

MODEL: F20X / F20XJ- II

# MAINTENANCE MANUAL



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**NAIGAI**

Following safety instructions are precautions for the operation and service of the strapping machine.

Read these safety instructions carefully before the operation or service of the machine.

### Operation

- (1) Before the operation, make sure that all the guards are fitted to the machine.
- (2) Never put any part of your body into or close to any moving section of the machine. otherwise, you may be hurt.
- (3) Before the operation, make sure that any safety device has not been removed.
- (4) Fully follow to the operating instructions in this manual.
- (5) The machine should be operated only by trained operator.
- (6) Use the specified power source.
- (7) To avoid overloading of the machine, keep recommended load limits.

### Repair and Maintenance

- (1) Before maintaining the machine, cut off all power sources.
- (2) Use appropriate tools and devices for maintenance and repair.
- (3) Repair and maintenance should be conducted only by well-trained service persons.

### Other Notes

- (1) Do not touch the heater and surrounding area before they are fully cooled down. The heater reaches temperature of about 380°C (716° F).
- (2) Install the machine on horizontal floor and keep the surrounding area free from dust and pieces of cut off the strap.
- (3) If there is any obscure point about the machine operation and the maintenance, please contact with the service engineer.

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Failure to Power-On

Symptom

(1) The Power Lamp does not illuminate even if the Power Switch is turned on.

(2) When the Power Switch turns on, the Cam rotates immediately and it never stops.

Symptom		Cause	Restoration
1	2		
•		A. The electric current is cut off, or the Power Cord Plug is set incorrectly.	Check if the electric current is supplied, or reset the Plug to the outlet correctly.
•		B. F1(3.15A)Fuse is melted. (a) For primary power 3.15A	Replace a F1 fuse(3.15A) after switch off the power switch. (F1(3.15A) is located on the left side of control box)
	•	C. LS1 remains "OFF".	Adjust or replace the LS1.
	•	D. LS4 (Start Switch) remains "ON". (a) The LS4 Actuator is bent down. (b) The LS4 Actuator is stuffed with dust. (c) Failure of the LS4 Switch	Adjust it. Clean it. Replace it.

## Trouble Shooting

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### Failure to Start-Up

#### Symptom

- (1) The machine does not start even if the Strap is inserted to the Chute.
- (2) The motor runs when the strap is inserted, but the strap is not reversed.
- (3) The buzzer keeps sounding when the strap is inserted, and the machine does not start.

Symptom			Cause	Restoration
1	2	3		
•			A. LS4 (Start Switch) does not turned on. (a) LS4 Actuator is bent down. (b) LS4 Actuator is stuffed with dust. (c) Failure of the LS4	Repair/Replace it. Clean it. Replace it.
•			B. F1(3.15A)Fuse is melted. (a) For primary power 3.15A	Replace a F1 fuse(3.15A) after switch off the power switch. (F1(3.15A) is located on the left side of control box)
	•		C. Improper reversing position (a) The Sensor Cam is improperly installed.	Re-install the Sensor Cam.
•			D. LS1 is not set at a home position.	Depress the Home Position/Feed Switch (PB1) so as to stop the Cam at the home position.
		•	E. Faulty operation of the machine is observed.	Turn OFF ("O") the Power Switch. Refer to "Warnings by Buzzer" in this troubleshooting.

Failure to Reverse and Tension the Strap

Symptom

- (1) Strap gets sealed without reversing the strap on the Package.
- (2) Strap is pulled back into the machine during the tensioning process.
- (3) Strap is wrapped around the package, but the machine does not go on to the next step.

Symptom			Cause	Restoration
1	2	3		
•			A. LS3 fails to turn-on/off. (a) The magnet is broken. (b) The switch is broken or out of order. (c) The contact of the connector is poor.	Replace it. Replace it. Re-set it.
	•		B. Strap end comes out from the Right Jaw. (a) The pressing power of the Right Jaw is weak. (The Press Spring gets weak.) (b) There is a play at the Slide Table Movement. (c) There is a play between the Back-up Block and the Slide Table.	Replace it. Adjust it. Adjust it.
		•	C. Feed Roller slips. (a) There is Oil on the strap or on the feed roller. (b) The Feed Roller is worn out.	Clean it. Replace it.
•			D. LS2 fails to turn on.	Adjust or replace it.

Failure to Seal the Strap

Symptom

- (1) Strap fails to be sealed. (The heater plate is never heated up.)
- (2) Strap fails to be sealed. (The heater plate is heated up.)
- (3) The sealed part looks good from the appearance, but is not actually well sealed.
- (4) The sealed part is melted too much.

Symptom				Cause	Restoration
1	2	3	4		
•				A. Heater is disconnected or the contact of the Connector is not well enough.	Re-insert or replace it.
•				B. The Heater Plate is not fully heated up as the machine has just been turned on.	Wait about 35 seconds. (Note 1)
	•			C. The heater plate is deformed.	Adjust or replace it.
		•		D. The heater plate temperature is low.	Adjust the temperature dial a bit higher.
	•	•		E. The Press Spring is broken or gets weak.	Replace it.
			•	F. The temperature adjusting dial is set too high.	Set the dial to a little bit lower position.

[Note 1] : Please be sure to wait 35 seconds to get the proper temperature of the heater plate after the power switch turns ON. Otherwise the rapid heating timer of the heater would be released and not work properly.  
 In case the Timer is released, turn OFF ("O") the Power Switch, and then turn it ON ("I") again. The rapid heating timer will work again for 35 seconds.

Failure in Feeding/Resetting

Symptom

- (1) After a strapping cycle, the buzzer sounds and the Strap is not fed.
- (2) The Strap is not fed even if the Feeding/Resetting Switch is depressed.
- (3) The M1 Motor does not run while the strap is reversing, even if the Feeding/Resetting Switch is depressed.

Symptom			Cause	Restoration
1	2	3		
•	•		A. Strap is twined around the Reel. (a) Strap falls between the Coil and the Reel Plate. (b) Strap falls off as the Reel Brake does not function well. (c) Strap is twisted.	Correct the Strap condition to the normal. Adjust the brake. Cut the Strap.
	•		B. The LS3 is out of order.	Replace it.
•			C. The pressure of Feed Roller is insufficient.	Adjust the Feed Bolt.
•			D. Motor is out of order. (a) The contact of Connector is poor. (b) Motor is out of order.	Re-insert it. Replace it.
	•	•	E. Push Button Switch malfunctions. (a) The Push Button Switch is out of order. (b) The contact of the Connector is insufficient. (c) Soldering is insufficient.	Replace it. Re-insert it. Re-solder it.
		•	F. Feed Roller slips. (a) There is Oil on the Strap or on the Feed Roller. (b) The Feed Roller is worn out.	Clean it. Replace it.



Warnings by Buzzer

Symptom

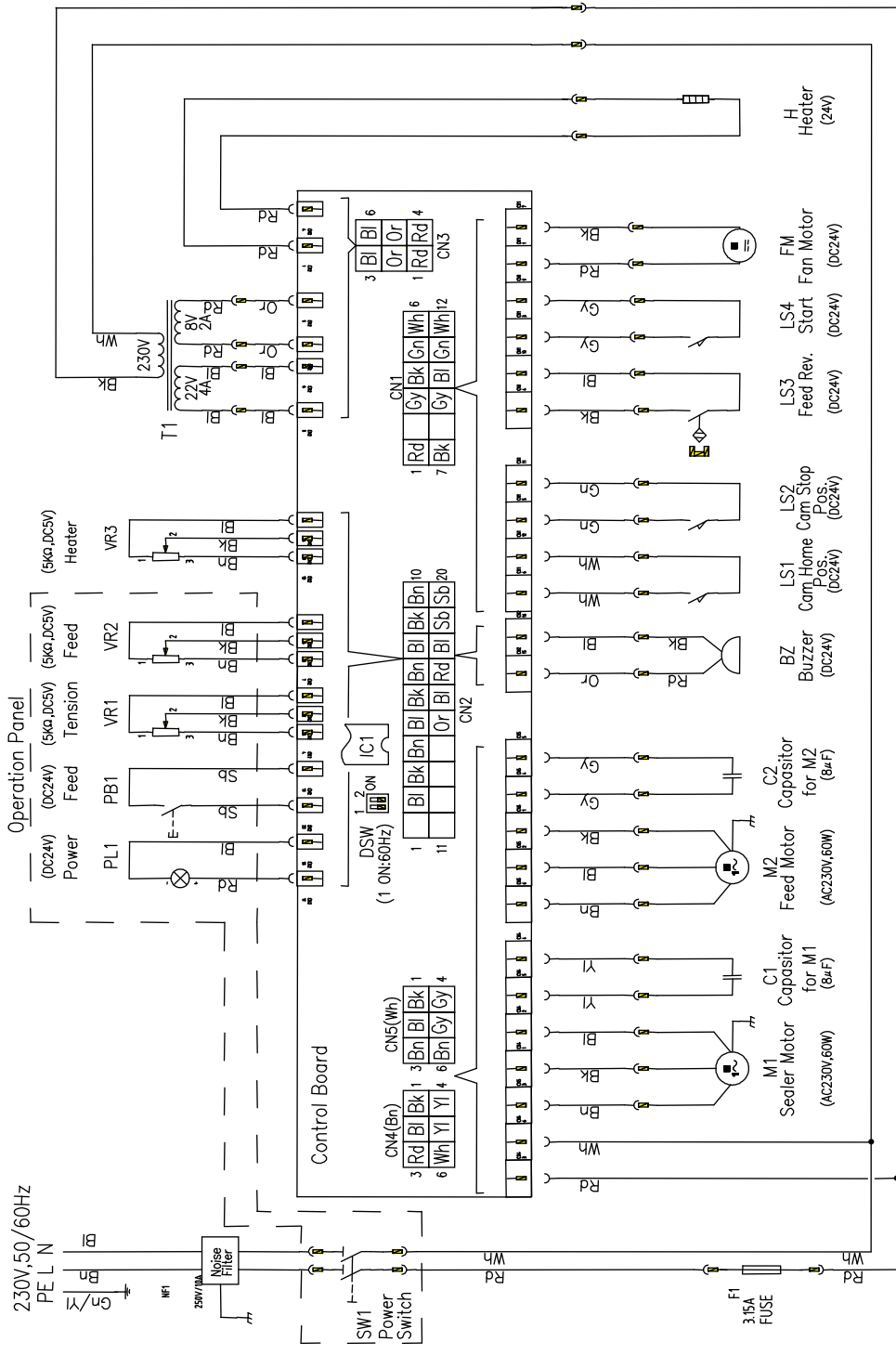
- (1) The buzzer keeps sounding continuously, and the machine does not operate.
- (2) When the strap is inserted into the chute in order to start up a cycle, the buzzer continues to sound.
- (3) When the strap is fed, the buzzer sounds intermittently.

Symptom			Cause	Restoration
1	2	3		
•	•		A. The machine is severely out of order. (a) The motor does not stop in a fixed time.  (b) The Feed Motor keeps running over a fixed time.  (c) The heater keeps being ON for a fixed time continuously.	Turn OFF ("O") the power switch. LS1 and LS2 are out of order. Turn OFF ("O") the power switch.  Do not depress the Feeding/Resetting Switch over 25 seconds continuously. Turn OFF ("O") the power switch.  Turn OFF ("O") the power switch.
		•	B. The strap is not fed smoothly.  (a) Strap is fed a bit (50mm) by the Feeding/Resetting Switch. (The motor rotates a little.)  (b) Motor does not run at all. The contact of the connector is poor.	Refer to the troubleshooting in the Failure in Feeding/Resetting. Strap end is bent or twisted. Cut the strap. LS3 is not activated.  Re-insert it.

[Notes]

Continued buzzer sound is stopped when the Feeding/Reset Switch is depressed.

# Wiring Diagram



### Cleaning and Lubrication

In order to secure the longest possible life and to keep the trouble free condition of the machine, it is essential to clean and lubricate it. Especially, remove strap pieces and dust which are stuck around the Sealer Unit. If you need further information, ask the distributor for it.



#### Warning

Before cleaning or lubrication, be sure to set the power switch to "O" (OFF) and pull off the plug from the outlet, and then remove both the right and left screws for fixing the table plate in order to start the work.

Otherwise, there are risks of electric shock or any injury when the machine starts unexpectedly. After finishing the work, fix the table plate with the screws, and then turn on the power.

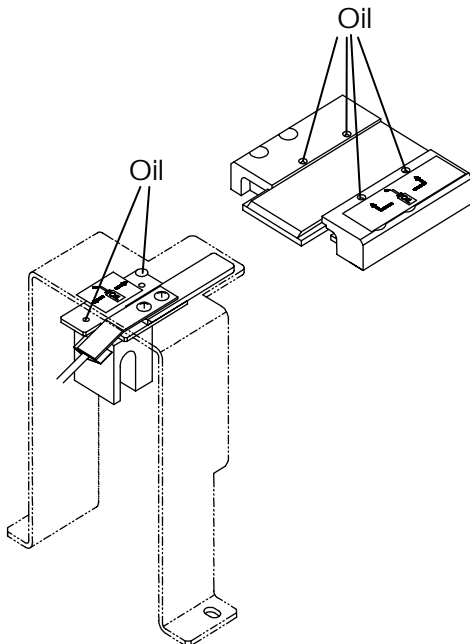


#### Caution

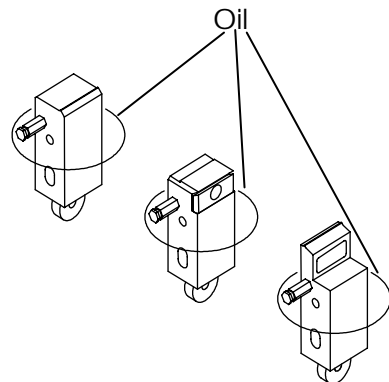
Oil the following points shown as illustration once a week. (Oil marked points in the illustration A)

Do not oil any other parts than oil marked points in the illustration A and B.

It will cause troubles if oiling is done for the other points.



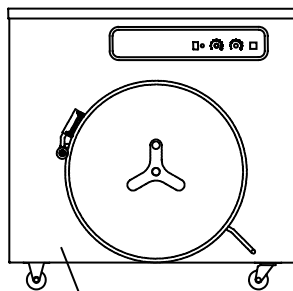
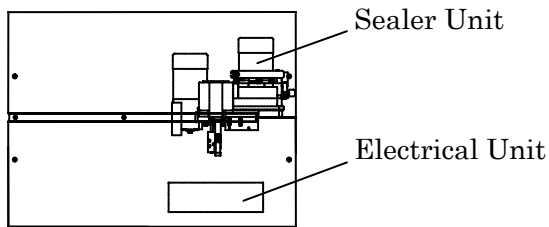
**Illustration A**



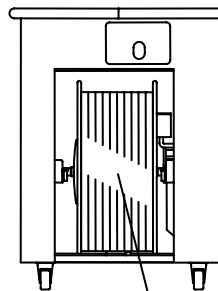
**Illustration B**

## < HOW TO FIND PARTS NUMBER >

- 1 Each "UNIT" is illustrated by a separate figure.
- 2 First, study the figure opposite.
- 3 See "TABLE OF CONTENTS".  
You can find the Fig. No in which the "UNIT" is illustrated.
- 4 From the illustration, check "Index No.". Find corresponding "Parts No." and "Parts Name" in the following pages.
- 5 When ordering your repair parts, please state "Index No." , "Parts Name" and Q'ty clearly.



Cabinet Unit



Reel Unit

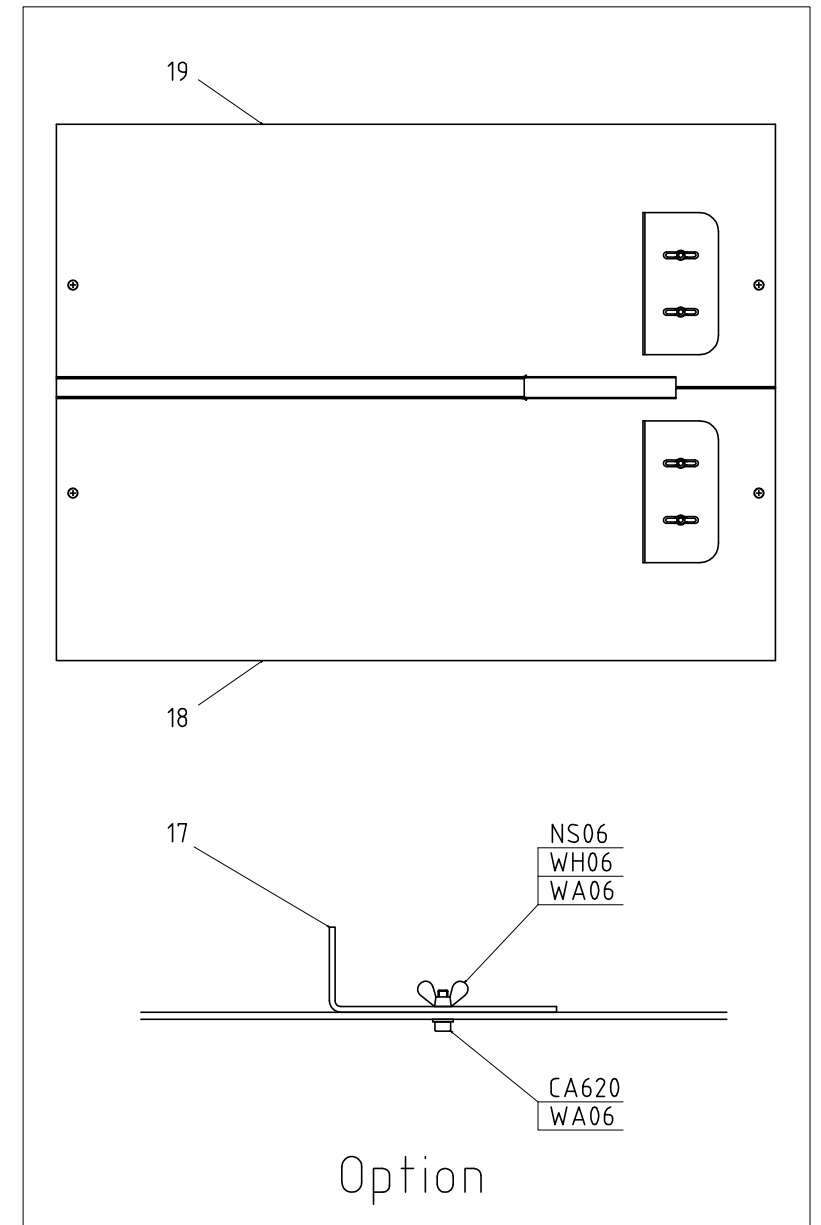
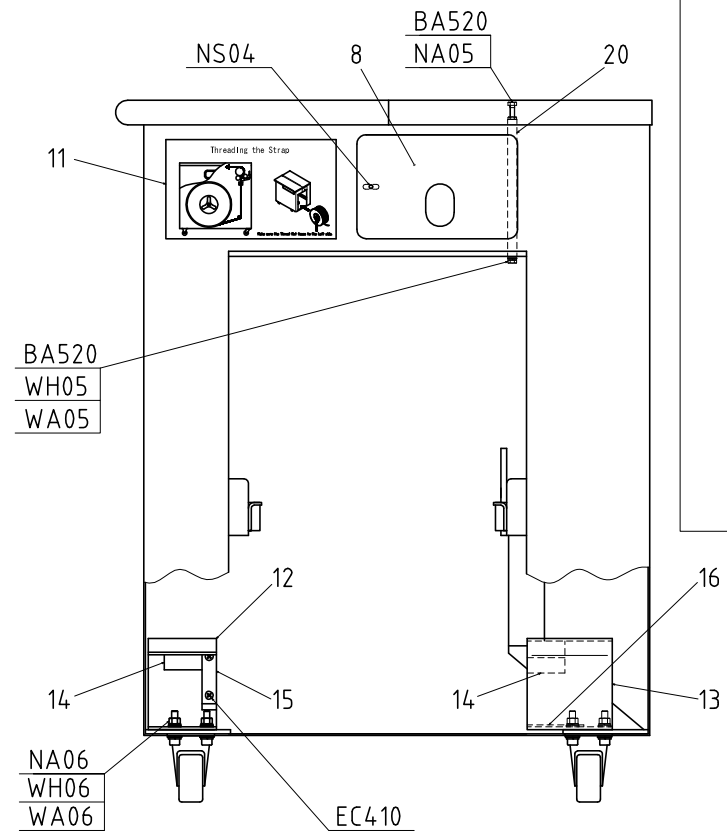
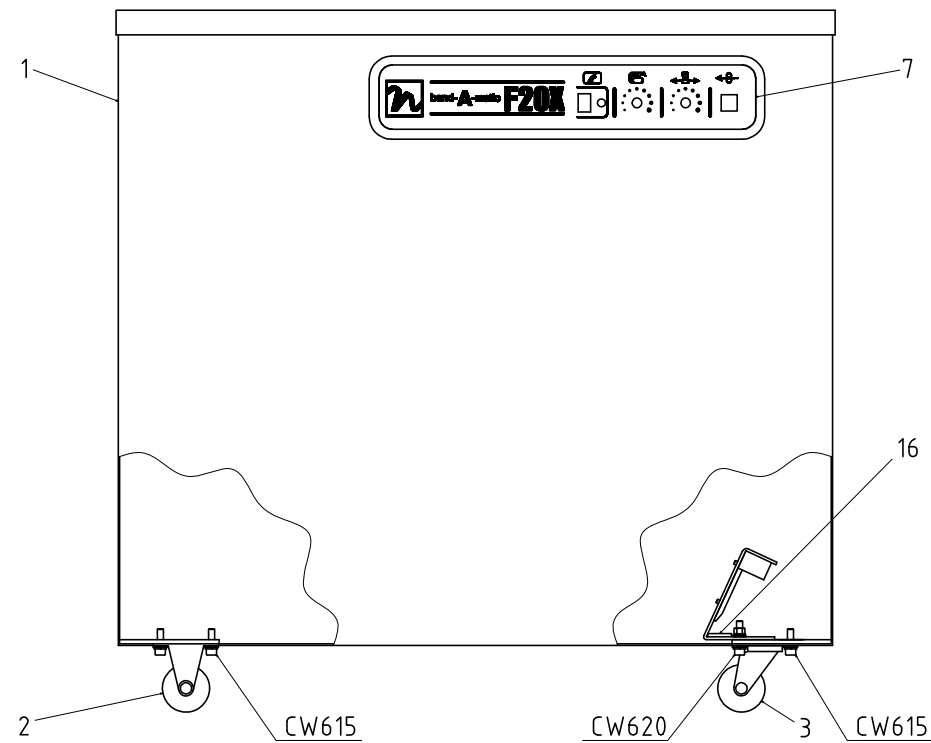
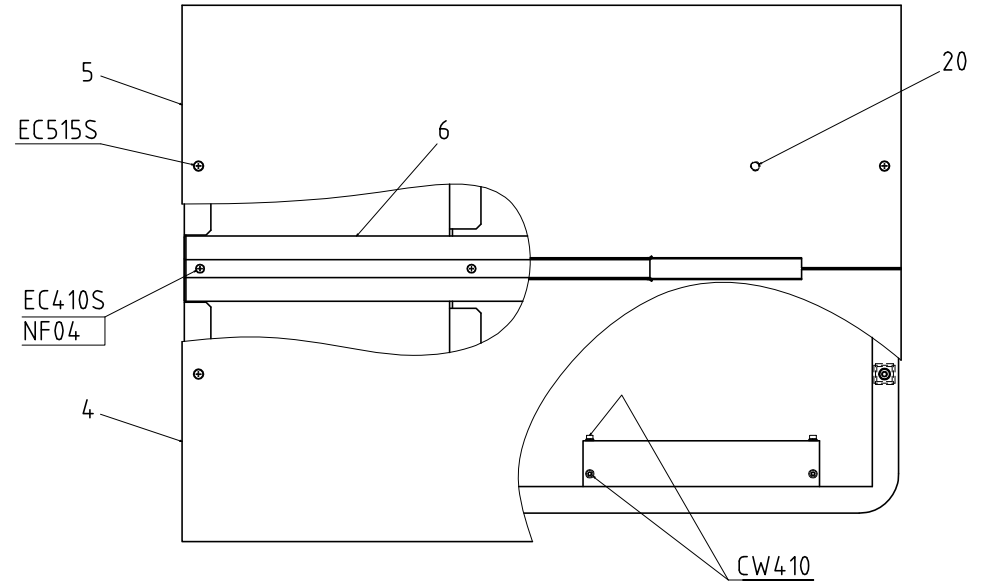
### INDEX

- Cabinet (1) Unit (F20X)
- Cabinet (2) Unit (F20XJ- II)
- Sealer (1) Unit
- Sealer (2) Unit
- Sealer (3) Unit
- Reel (1) Unit (F20X)
- Reel (2) Unit (F20XJ- II)
- Electrical Unit

CABINET (1) UNIT

SER. NO. '08.9  
PD-2XB-P1-04E

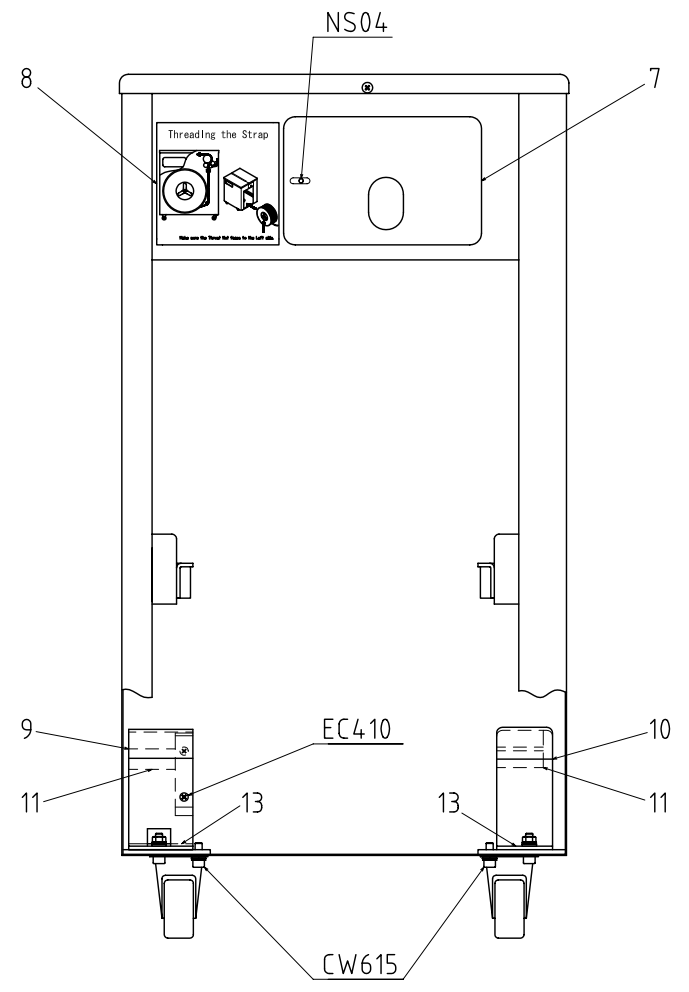
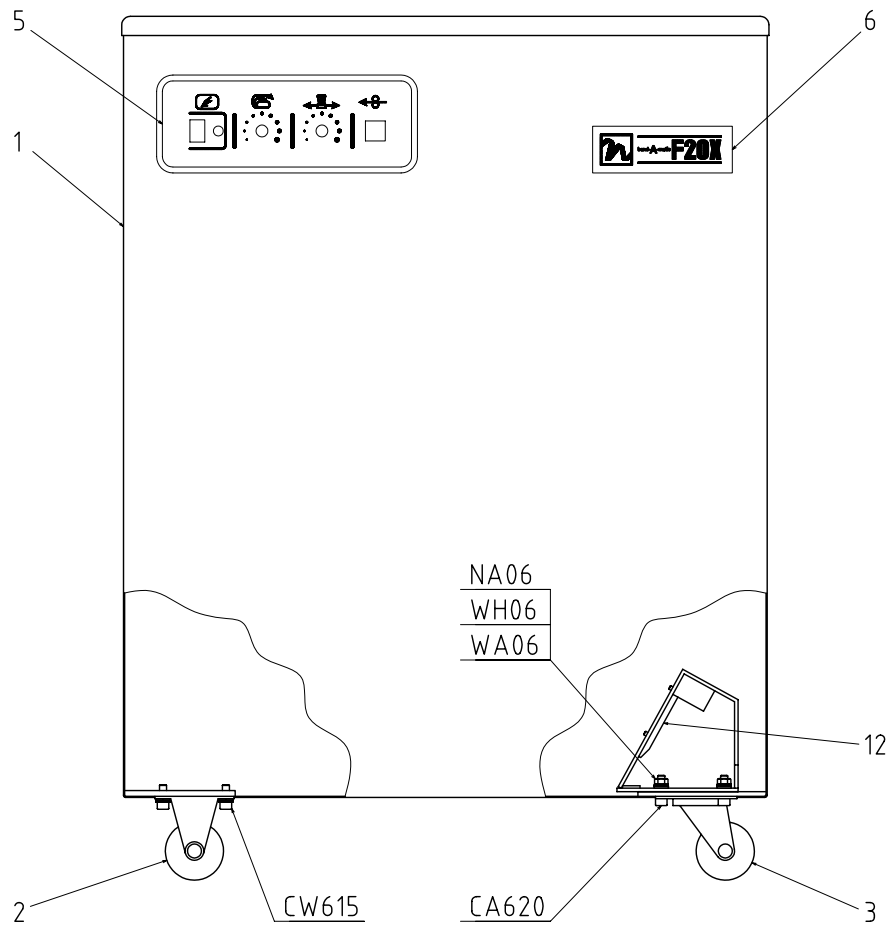
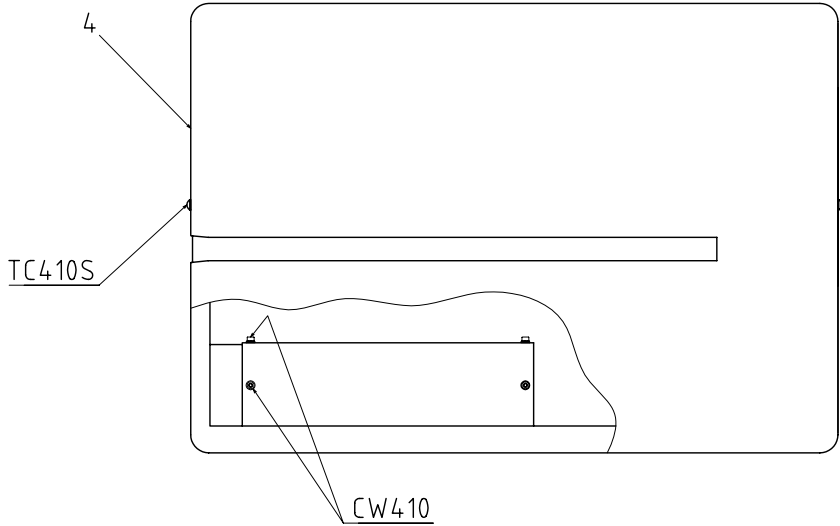
F20X





CABINET (2) UNIT	SER. NO.	'07.02
	PD-XJ2-P2-04A	

F20XJ - II

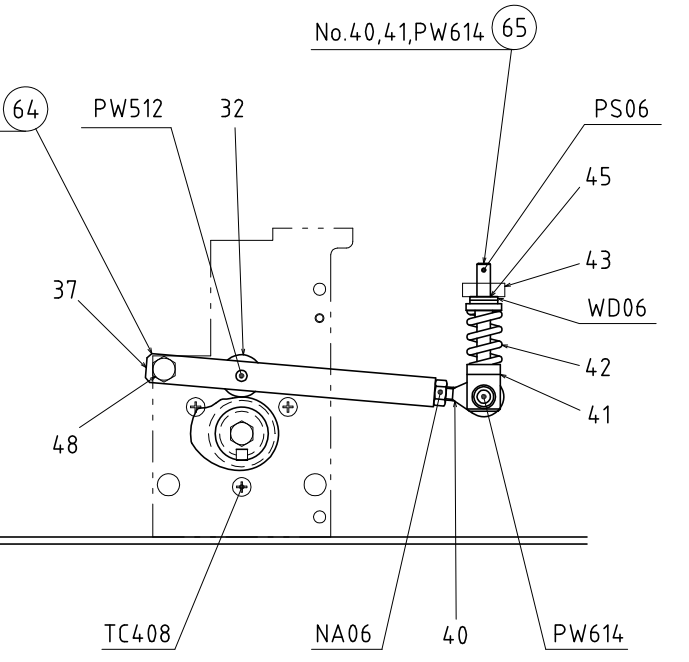
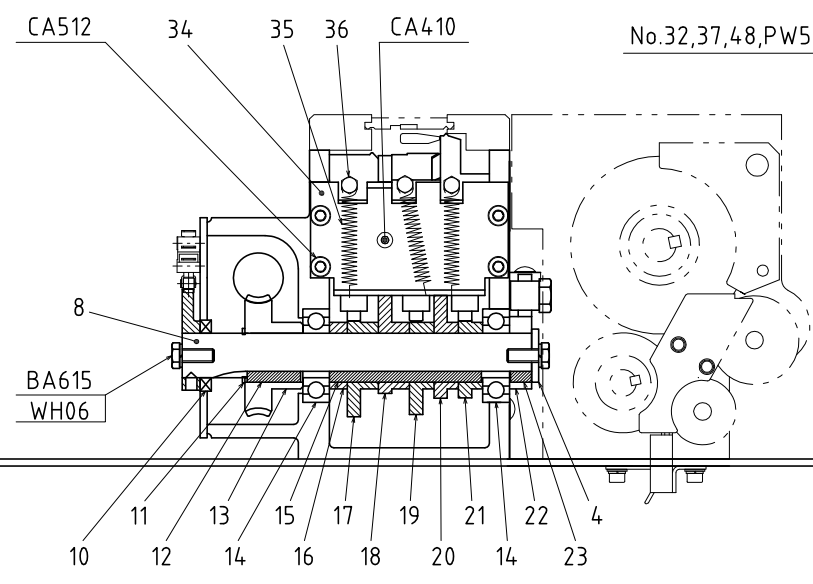
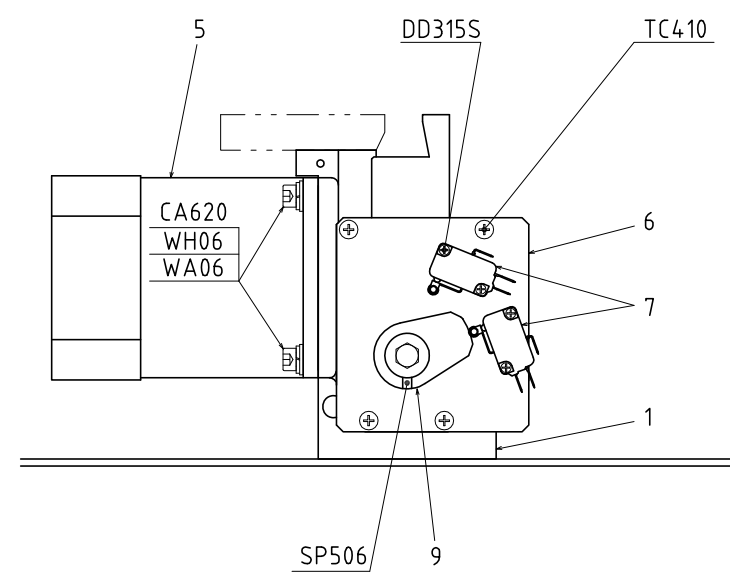
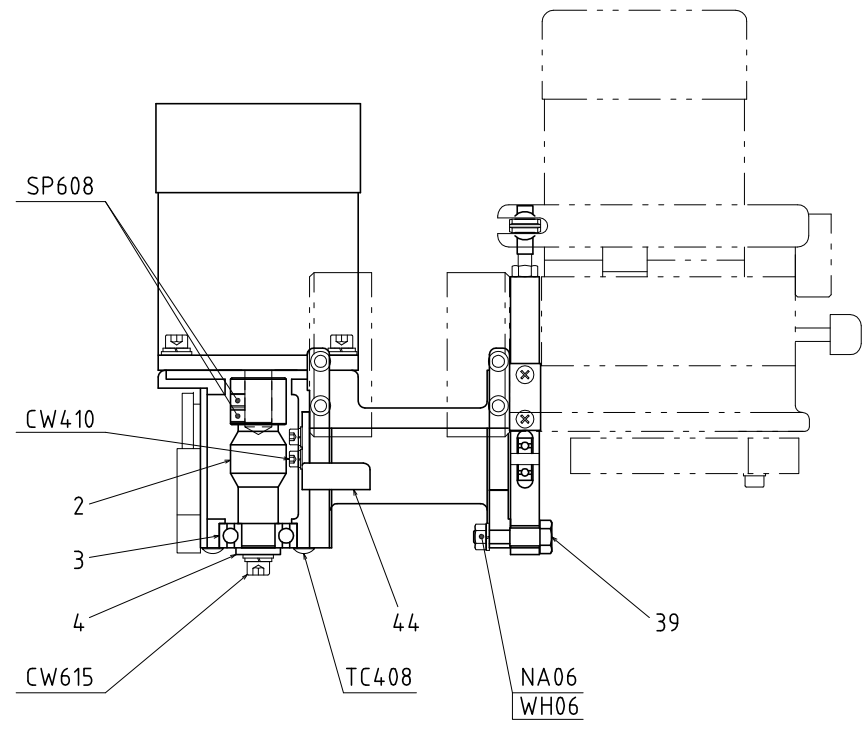
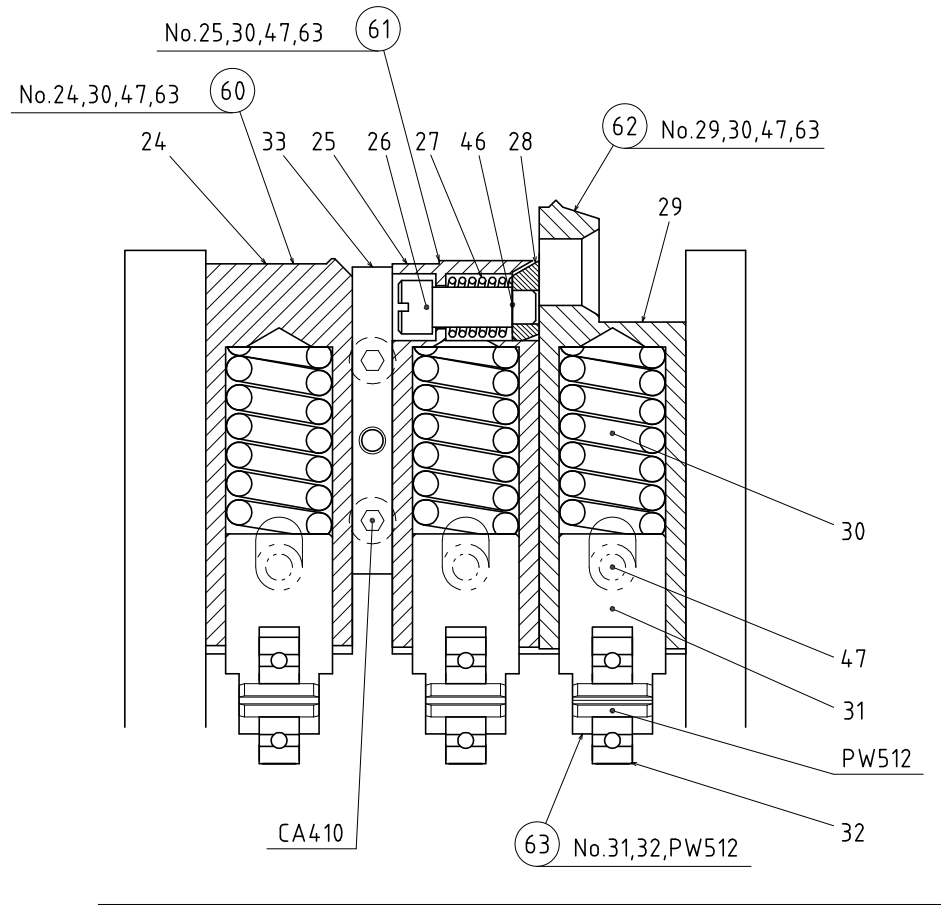






# SEALER (1) UNIT

SER. NO. '08.9  
PD-20X-C1-03E

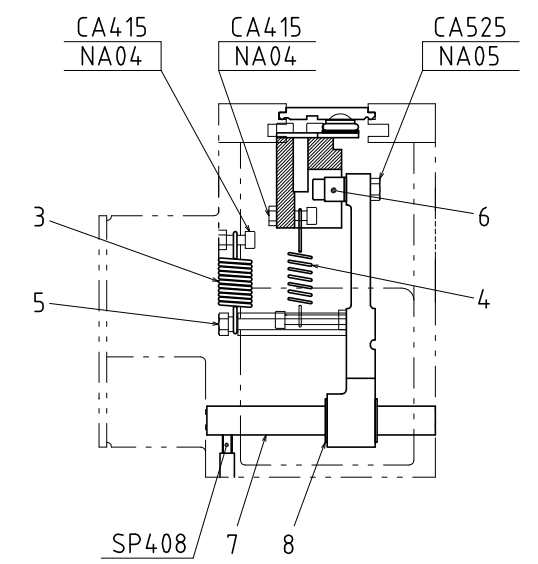
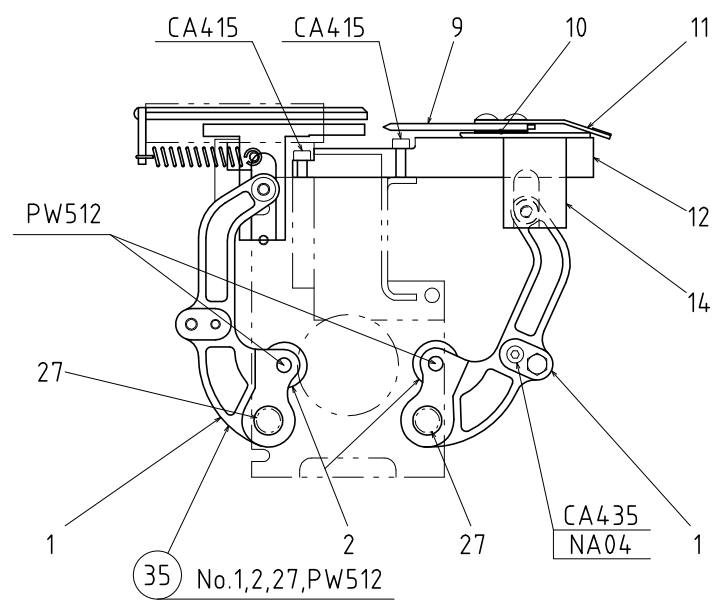
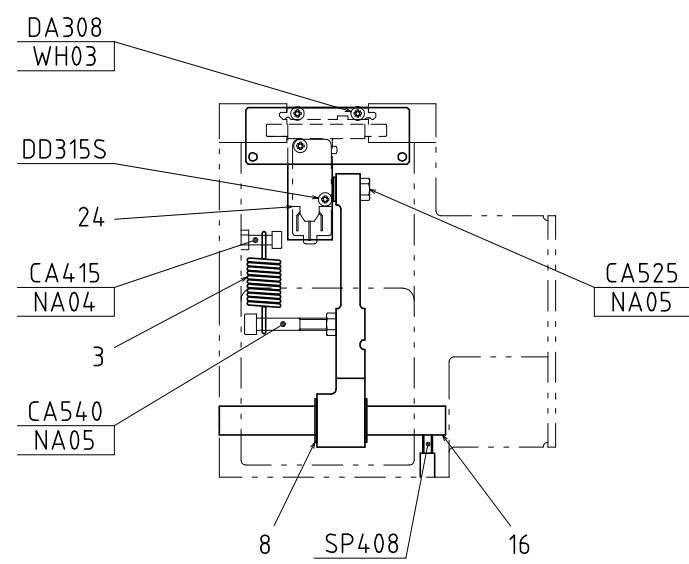
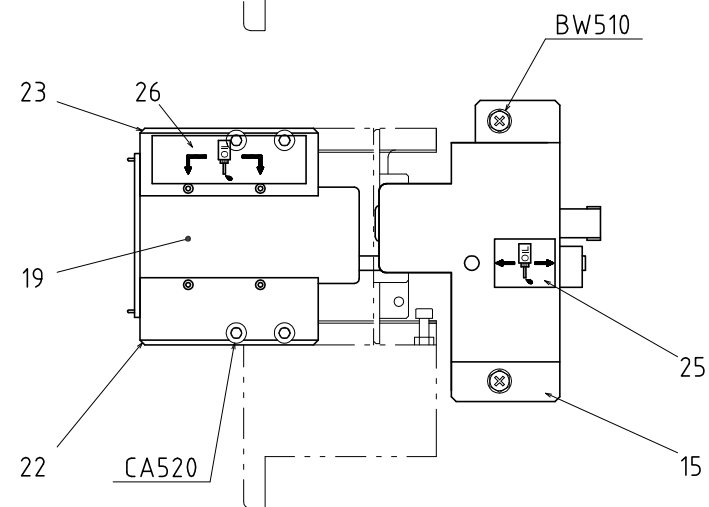
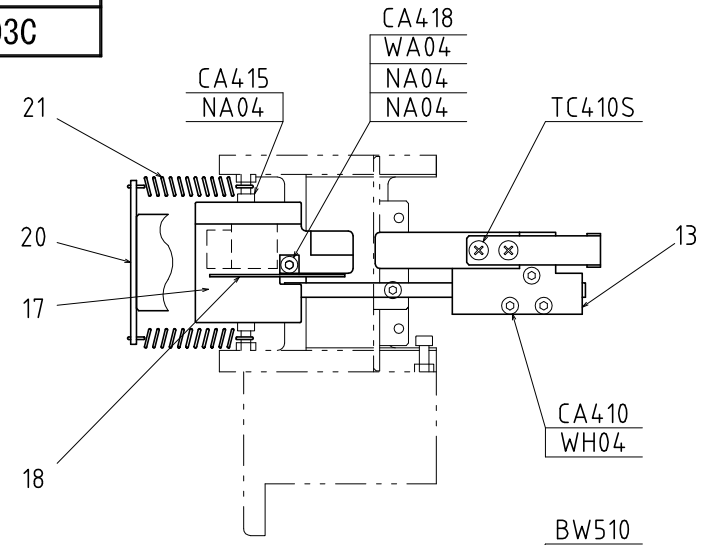


SEALER (1) UNIT		PL-20X-C11-04B	'08,9
Index No.	PART No.	PART NAME	Q'TY
1	8 - 3523 - G	Sealer Body	1
2	8 - 4067 - F	Worm Shaft	1
3	CB1 - 0620 - 202	Ball Bearing 6202ZZ	1
4	AN1 - 0603 - 579	Spacer	2
5	EM1 - A220 - 045	(M1) Motor	1
6	8 - 3528 - D	Cover	1
7	EP9 - 0510 - 408	(LS1,2) Limit Switch V-165-1A5 (LS1,2)	2
8	8 - 3527 - C	Cam Shaft	1
9	8 - 3534 - C	Sensor Cam	1
10	DJ1 - 0S00 - 010	Oil Seal	1
11	AR1 - 00ST - W20	Snap Ring STW-20	1
12	AK1 - 5524 - 012	Key	1
13	8 - 4068 - C	Worm Wheel	1
14	CB1 - 0600 - 402	Ball Bearing 6004ZZ	2
15	AK1 - 5560 - 090	Key	1
16	AN1 - 2008 - 570	Spacer	1
17	8 - 3529 - B	Grip Cam (Left)	1
18	8 - 3532 - B	Separator Cam	1
19	8 - 3531 - D	Pressure Cam	1
20	8 - 3530 - D	Heater Cam	1
21	8 - 3533 - D	Grip Cam (Right)	1
22	8 - 4025 - D	Shifter Cam	1
23	AK1 - 5507 - 088	Key	1
24	8 - 3536 - B	Jaw (Left)	1
25	8 - 3537 - C	Pressure Block	1
26	8 - 3542 - B	Cutter Holder Pin	1
27	AS1 - 1208 - 002	Spring	1
28	8 - 3541 - A	Cutter	1
29	8 - 3539 - C	Jaw (Right)	1
30	7 - 0880 - A	Pressure Spring	3
31	8 - 3540 - B	Tappet	3
32	CB1 - 0063 - 502	Ball Bearing 635ZZ	4
33	8 - 4320 - A	Cylinder Guide	1
34	8 - 3543 - D	Cylinder Cover	1
35	AT1 - 1611 - 238	Spring	3
36	F20 - 2122 - A	Hook Bolt	3
37	8 - 4027 - C	Spring Shift Lever	1
39	8 - 4056 - C	Lever Pin	1



SEALER (2) UNIT

SER. NO.	'08.2
PD-20X-C2-03C	

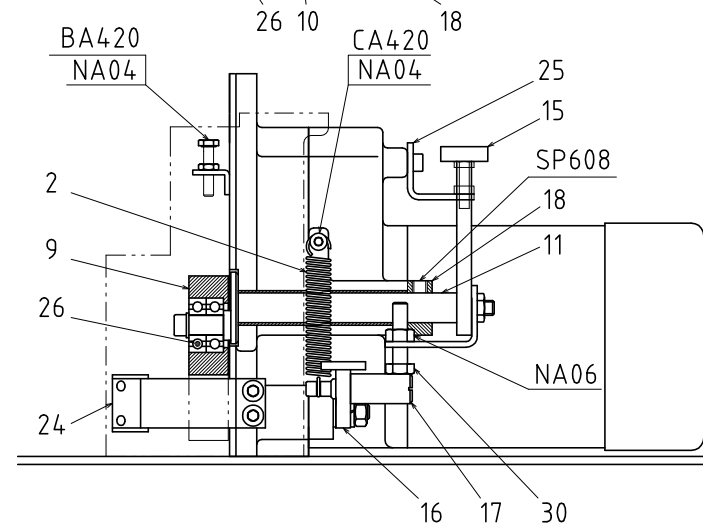
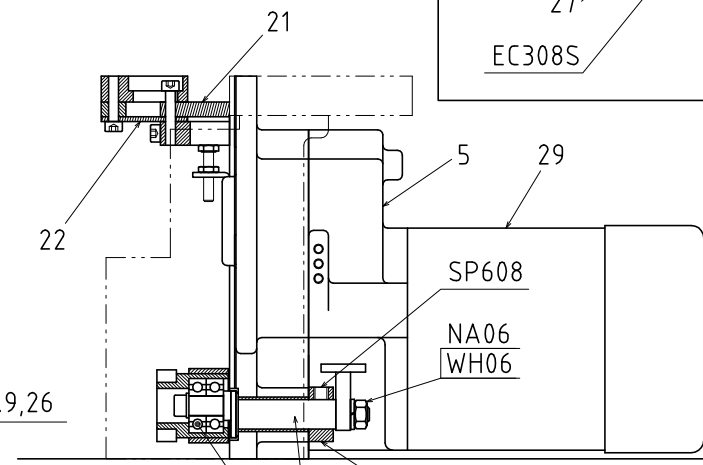
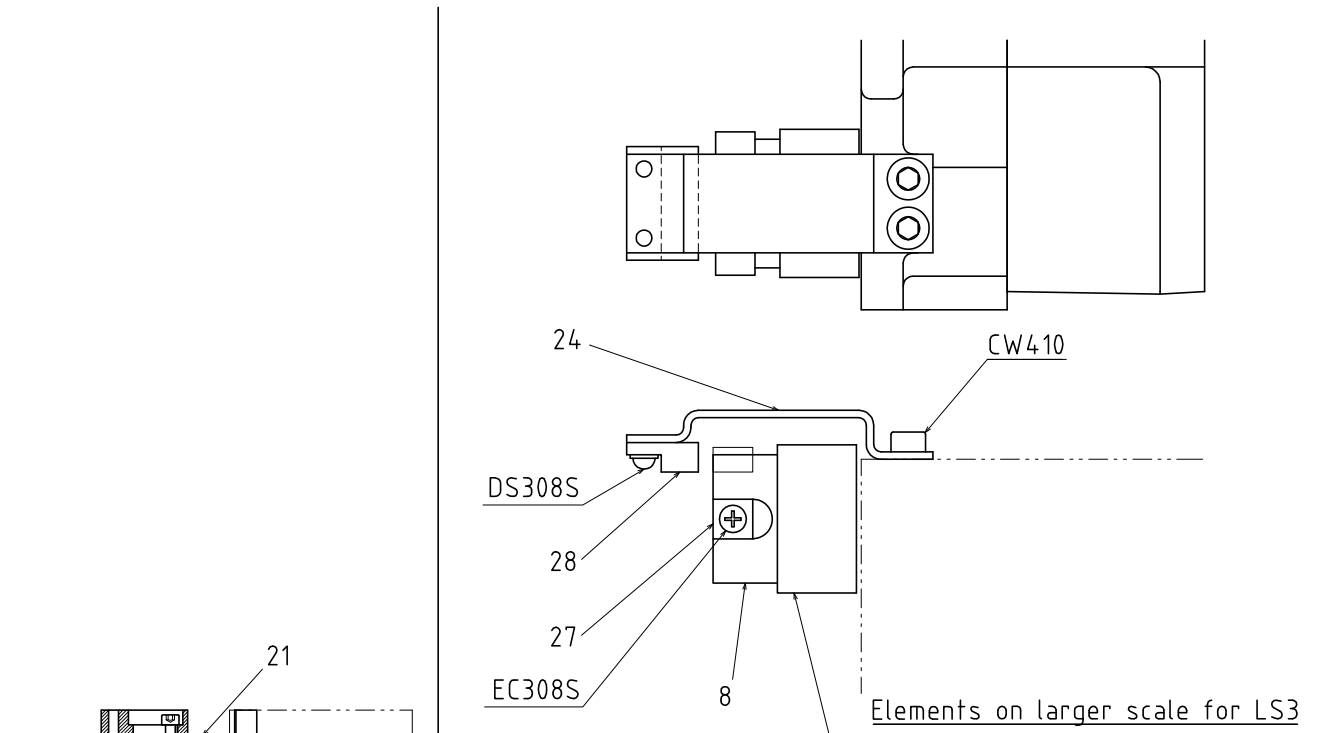
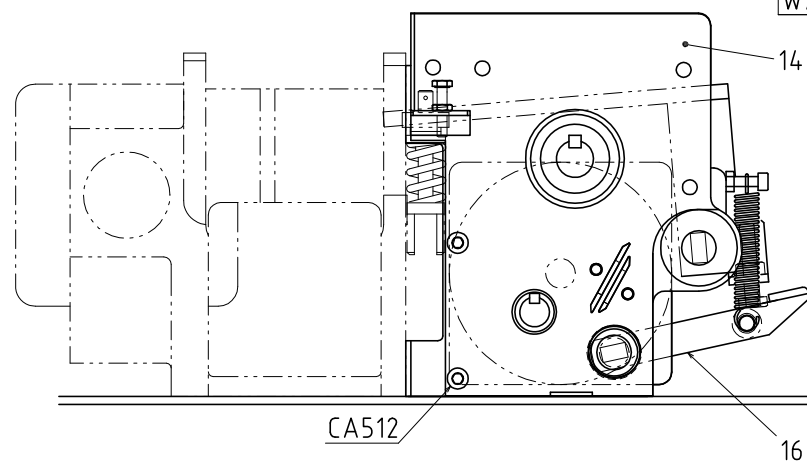
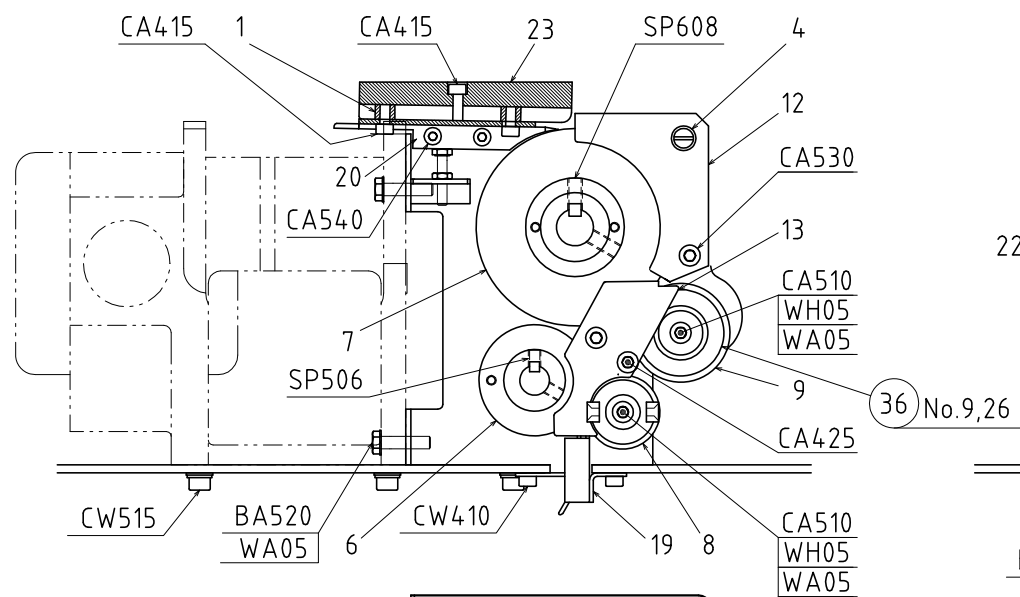
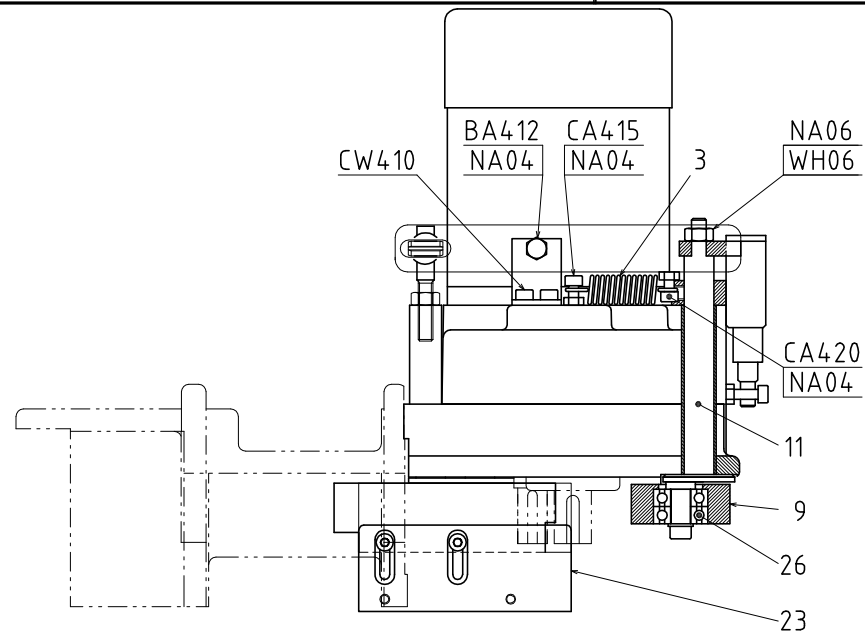


SEALER (2) UNIT		PL-2XB-C21-04C	'08,9
Index No.	PART No.	PART NAME	Q'TY
1	8 - 3544 - A	Arm	2
2	CB1 - 0063 - 502	Ball Bearing 635ZZ	2
3	AT1 - 1412 - 234	Spring	2
4	AT1 - 0909 - 241	Spring	1
5	F20 - 2127 - A	Hook Bolt	1
6	AN1 - 0508 - 115	Arm Spacer	2
7	8 - 3545 - C	Heater Arm Shaft	1
8	ARO - 00ET - WJ9	Snap Ring ETWJ-9	4
9	EH1 - 0000 - 043	Heater Plate	1
10	8 - 3913 - A	Mica Plate	1
11	8 - 4244 - B	Cable Holder	1
12	8 - 4215 - A	Heater Guide Bar	1
13	8 - 4218 - A	Heater Holder (Upper)	1
14	8 - 4219 - B	Heater Holder (Lower)	1
15	8 - 3547 - D	Heater Cover F20X	(1)
	N01 - 0439 - A	Heater Cover F20XJ- II	(1)
16	8 - 3551 - C	Separator Arm Shaft	1
17	8 - 3550 - D	Separator	1
18	8 - 4946 - A	LS4 Actuator	1
19	8 - 3552 - C	Slide Table	1
20	8 - 3553 - B	Table Stopper	1
21	7 - 0886 - A	Spring	2
22	8 - 4808 - A	Guide Block (Left)	1
23	8 - 4809 - A	Guide Block (Right)	1
24	EP9 - 0000 - 009	(LS4) Limit Switch VX-5-1C22 (LS4)	1
25	HM1 - 000M - 845	Oil Decal (Heater Cover)	1
26	HM1 - 000M - 846	Oil Decal (Guide Block Right)	1
27	CM3 - 0001 - 020	Bush	2
35	ASY - F20X - 007	Arm Assy	(2)

# SEALER (3) UNIT

SER. NO. '08.2

PD-20X-C3-03E

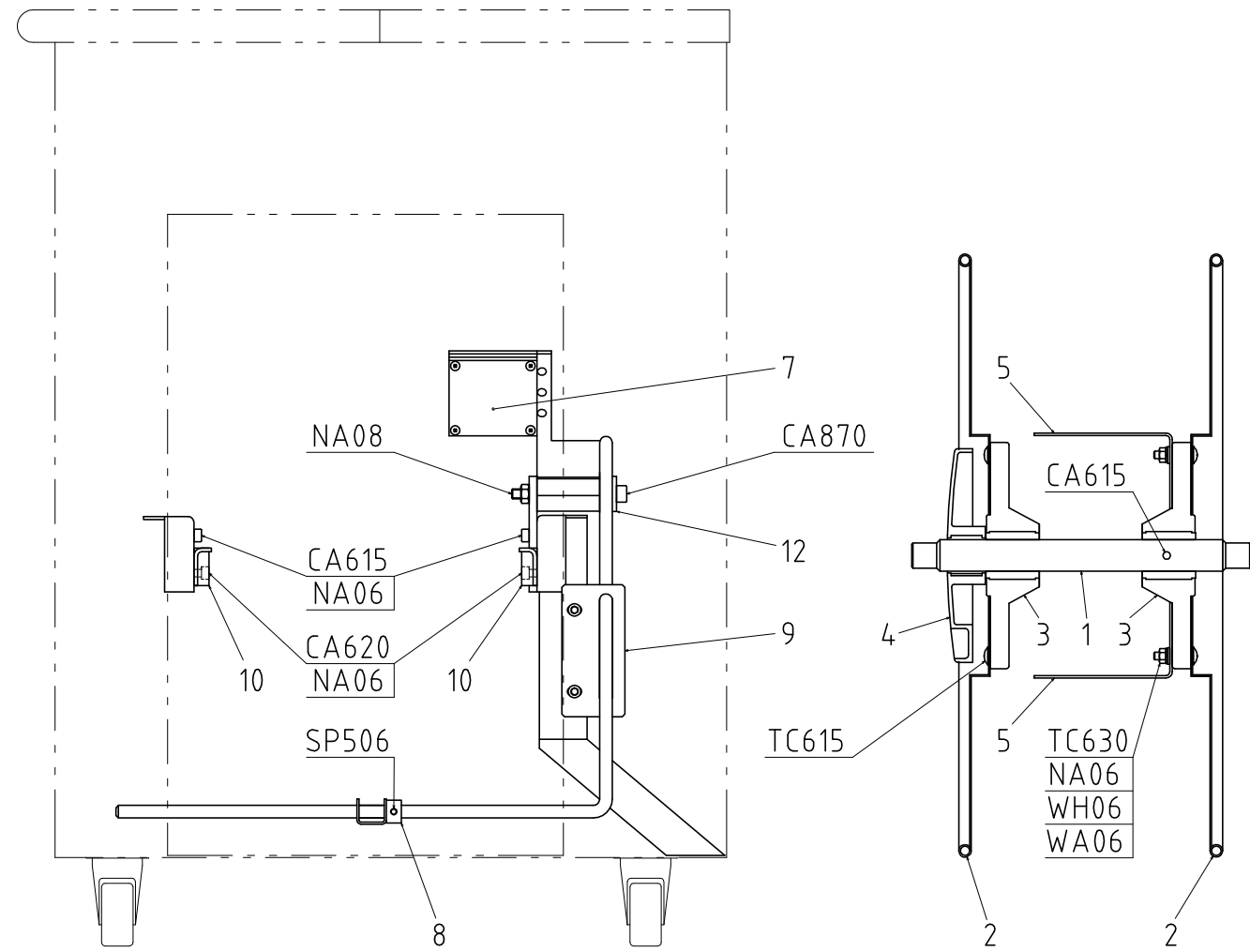
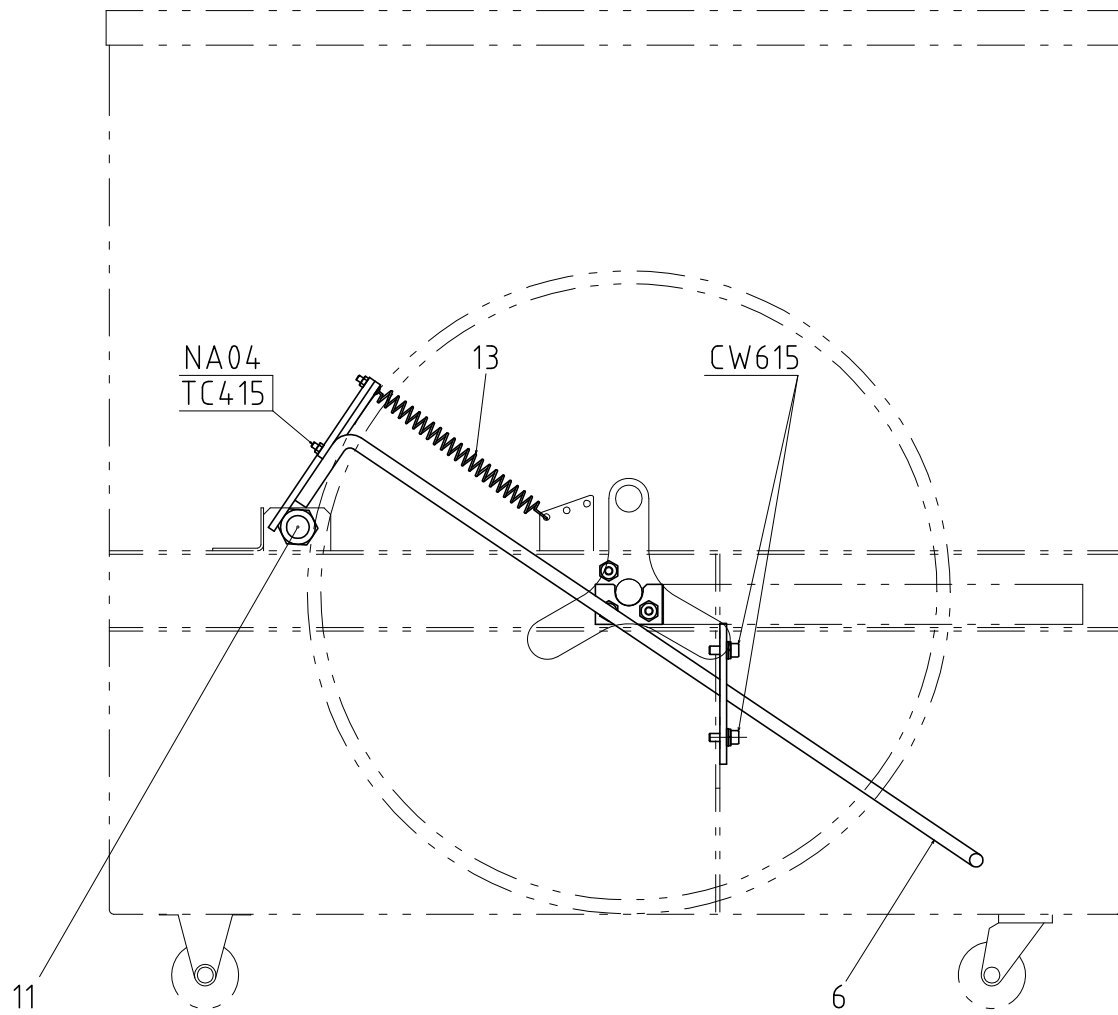


SEALER (3) UNIT		PL-20X-C31-04F	'08,5
Index No.	PART No.	PART NAME	Q'TY
1	AN1 - 0506 - 566	Spacer	2
2	AT1 - 1511 - 237	Spring	1
3	AT1 - 0608 - 035	Spring	1
4	N01 - 2083 - A	Strap Guide Pin	1
5	N01 - 1595 - A	Feed Reducer Ass'y	1
6	8 - 4036 - B	Feed Roller	1
7	8 - 4035 - C	Tension Roller	1
8	8 - 4038 - C	Feed Follower Roller	1
9	8 - 4094 - A	Tension Follower Roller	1
10	8 - 4040 - C	Feed Follower Roller Lever	1
11	8 - 4039 - C	Tension Follower Roller Lever	1
12	8 - 4042 - C	Strap Guide (Upper)	1
13	8 - 4045 - C	Cover	1
14	8 - 4024 - D	Back Plate	1
15	8 - 4028 - C	Arm	1
16	8 - 4029 - C	Joint	1
17	8 - 4065 - C	Joint Pin	1
18	8 - 4041 - C	Shaft Stopper Collar	2
19	8 - 4052 - A	Lower Chute	1
20	8 - 4046 - C	Chute	1
21	8 - 4047 - C	Chute Cover	1
22	8 - 4048 - C	Strap Guide	1
23	8 - 4049 - B	Strap Guide (Front)	1
24	8 - 4044 - B	Sensor Holder	1
25	8 - 4227 - B	Stopper	1
26	CB1 - 0060 - 802	Ball Bearing (608ZZ)	4
27	FM1 - 0000 - 005	Magnet (MFT-2021)	2
28	ER1 - A000 - 025	(LS3) Magnetic Reed Switch RS-803NO (LS3)	1
29	EM1 - A220 - 046	(M2) Motor	1
30	8 - 4948 - B	Bolt	1
35	ASY - F20X - 008	Feed Follower Roller Assy	(1)
36	ASY - F20X - 009	Tension Follower Roller Assy	(1)

REEL (1) UNIT

SER. NO.	'08.9
PD-2XB-S1-04D	

F20X







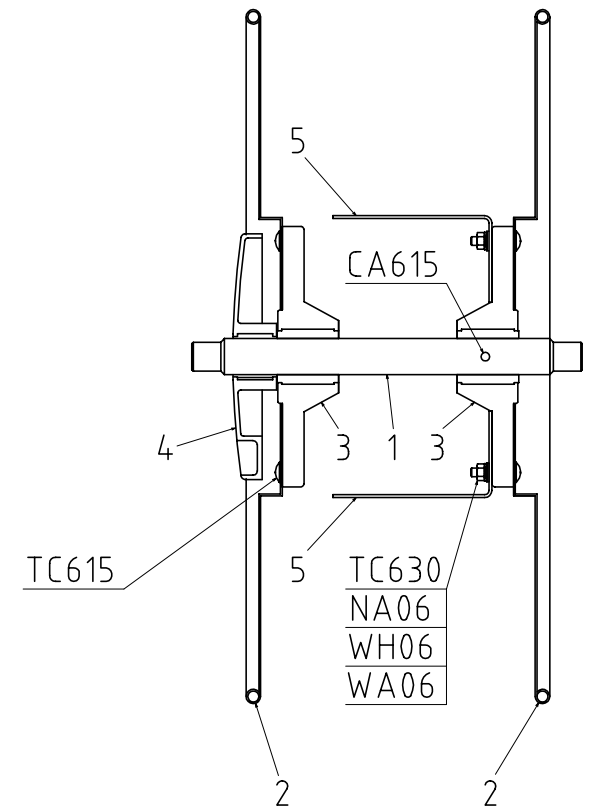
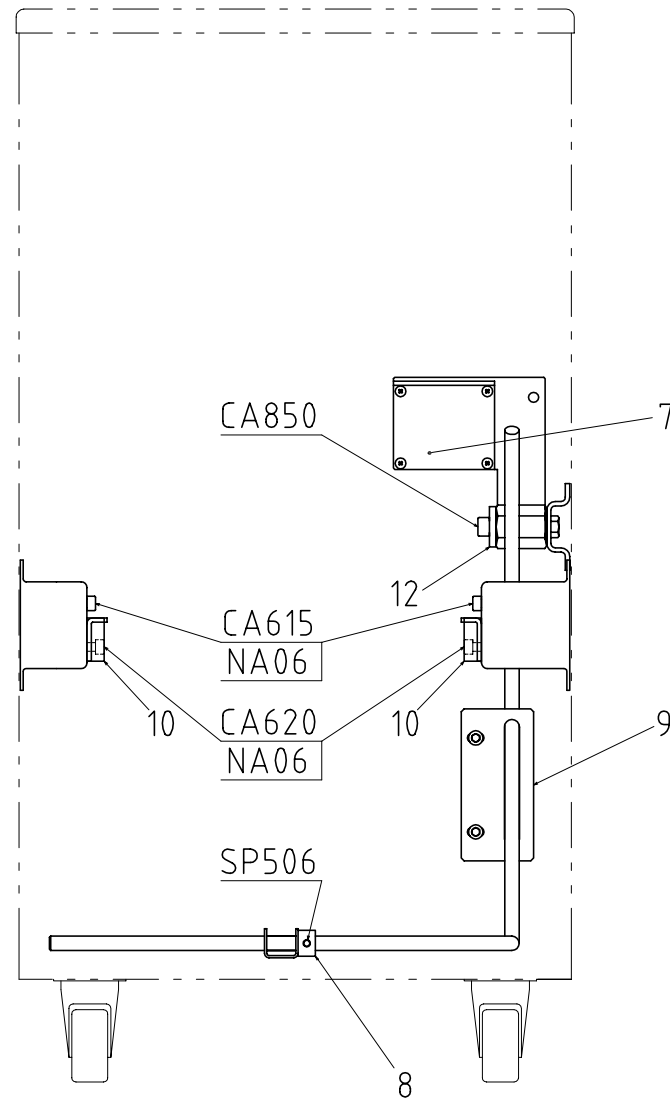
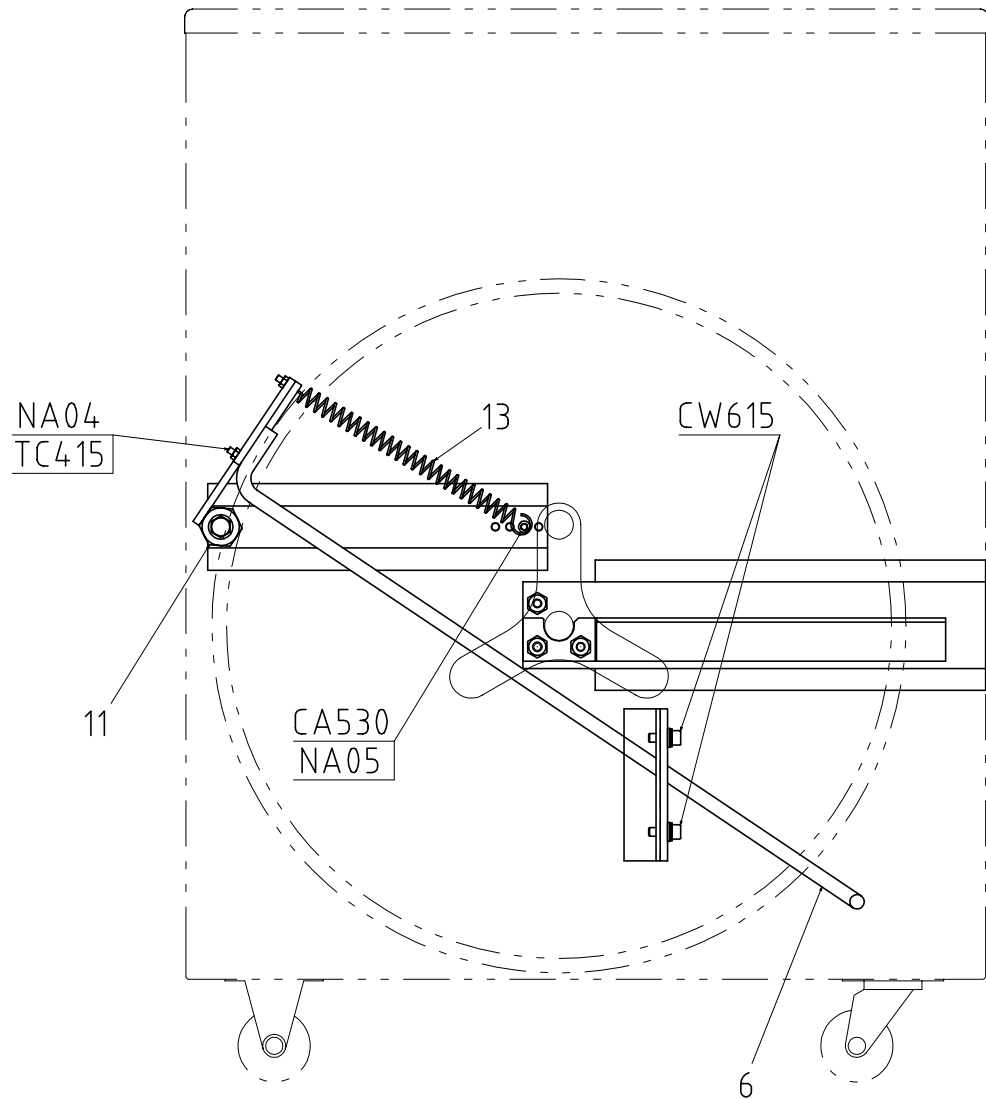
REEL (2) UNIT

SER. NO.

'07.09

PD-XJ2-S2-04C

F20XJ-II








# ELECTRICAL UNIT

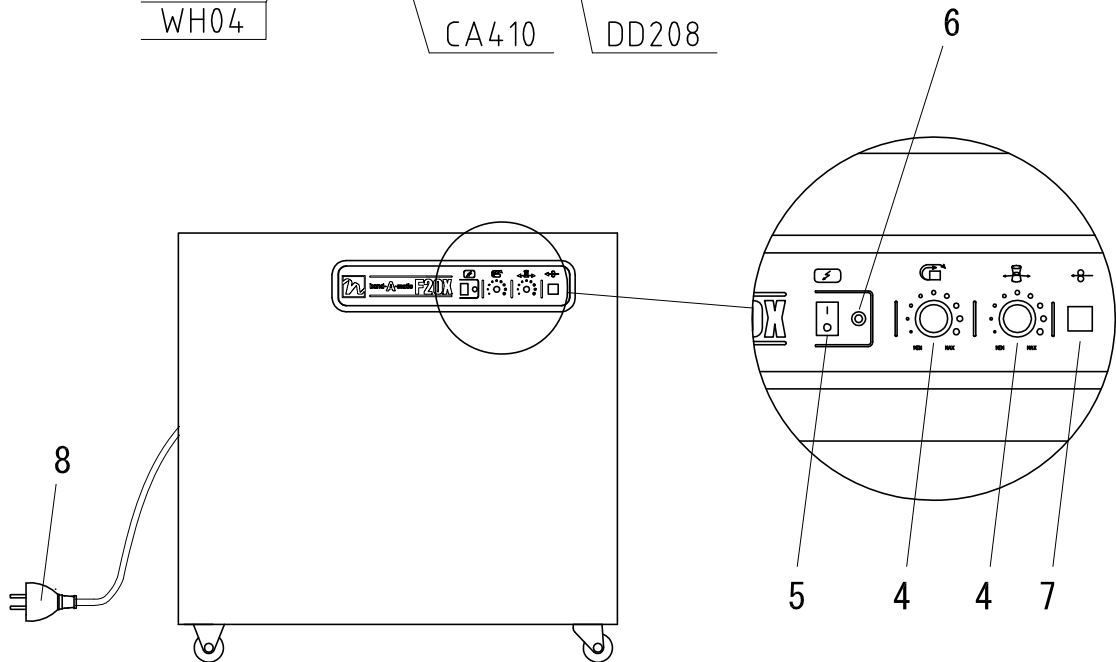
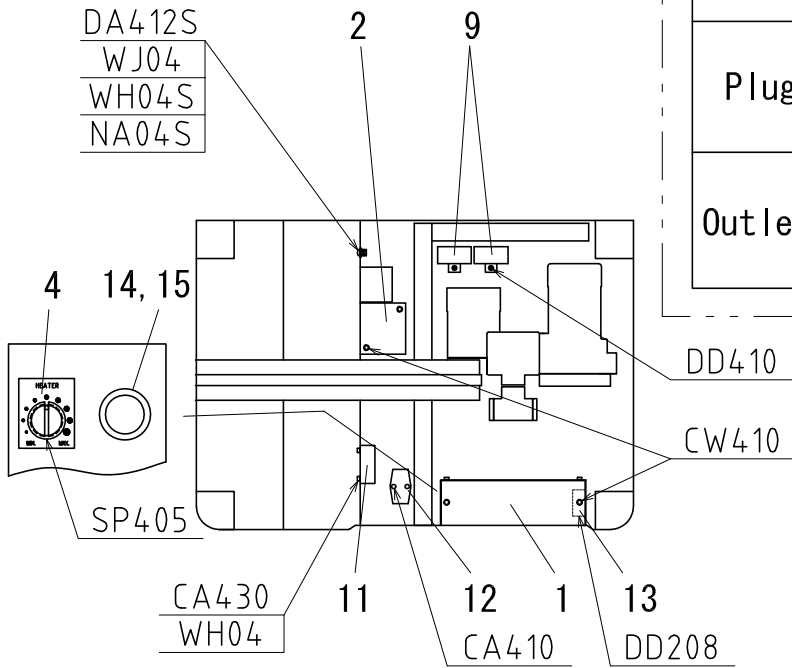
SER. NO.

'08.4

PD-20X-E1-04D

## No. 8 Power Code

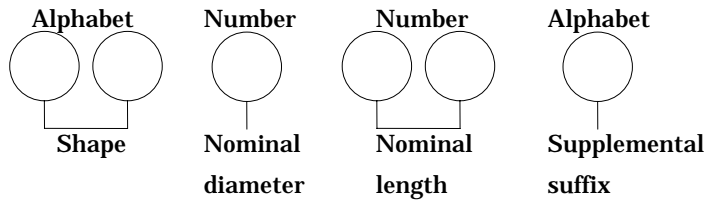
	SE	BF	
Plug			without Plug 
Outlet			





# Symbols of bolts, screws and lock screw

A symbol consists of alphabets and numerals.



( EX. ) BA 6 25 S

- \* Shape: Hexagonal head
- \* Nominal length under head: 25mm
- \* Nominal screw diameter: M6
- \* Material: Stainless steel

Kinds of supplemental suffix

- B: Brass
- F: Fine thread
- H: S45C
- L: Full length screw
- S: Stainless steel
- Y: Lock bolt
- No suffix: Steel

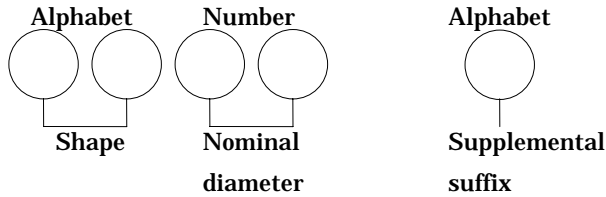
Type and Symbol lists

Type	Symbol	Name	Type	Symbol	Name
	BA	Hex. Hd. Bolt		HA	Cross Soc. Cylinder Hd. Screw
	BW	Hex. Hd. Bolt with Washer		JA	Cross Soc. Oval Flat Hd. Screw
	CA	Hex. Soc. Hd. Bolt		LA	Wing Bolt
	CW	Hex. Soc. Hd. Bolt with Washer		MC	Cross Soc. Tapping Screw
	CL	Hex. Soc. Low Hd. Bolt		TC	Cross Soc. Truss Hd. Screw
	DA	Cross Soc. Pan Hd. Screw		SP	Hex. Soc. Set Screw
	DD	Cross Soc. Pan Hd. Screw with Washer		SQ	Hex. Soc. Set Screw (Double point)
	DF	Cross Soc. Pan Hd. Screw with Flange		EH	Hex. Soc. Flat Hd. Screw
	EC	Cross Soc. Flat Hd. Screw			
	KH	Hex. Soc. Flat Hd. Screw			

Note: For bolts and Screw whose nominal diameters are 10mm or bigger they are not indicated with the above symbols, but are listed on the parts lists with Index No.

# Symbols of Nuts and Washers

A symbol consists of alphabets and numerals.



( EX. ) NA 06 S

\* Shape: Hexagonal head

\* Nominal screw diameter: M6      \* Material: Stainless steel

Kinds of supplemental suffix

B: Brass












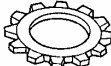


F: Fine thread

H: S45C

L: Full length screw

S: Stainless steel    No suffix: Steel

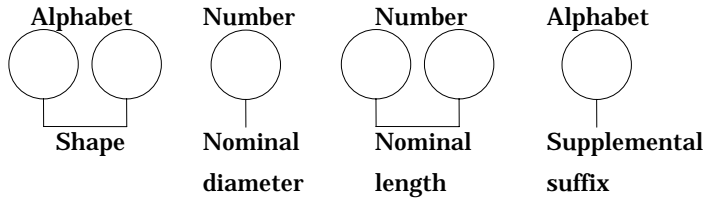
## Type and Symbol lists

Type	Symbol	Name	Type	Symbol	Name
	NA	Hex. Nut		WA	Flat Washer
	NG	Hex. Small Nut		WH	Spring Washer
	NF	Hex. Nut with Flange		WQ	Wave Washer
	NS	Wing Nut		WN	Toothed Washer (Single side)
	NY	Speed Nut		WJ	Toothed Washer (Inside)
	NC	Thin Nut		WK	Toothed Washer (Outside)
	NU	Cap Nut		WD	Toothed Washer (Large)

Note: For bolts and Screw whose nominal diameters are 10mm or bigger they are not indicated with the above symbols, but are listed on the parts lists with Index No.

# Symbols of Pins

A symbol consists of alphabets and numerals.



( EX. ) PX 4 25 S

\* Shape: Spring pin (Wave type)

\* Material: Stainless steel






\* Nominal diameter: M4

\* Nominal length: 25mm

**Kinds of supplemental suffix**

S: Stainless steel    No suffix: Steel

## Type and Symbol lists

Type	Symbol	Name	Type	Symbol	Name
	PB	Straight Pin			
	PE	Split Pin			
	PS	Snap Pin			
	PW	Spring Pin (W type)			
	PX	Spring Pin (Wave type)			

**Note:** For bolts and Screw whose nominal diameters are 10mm or bigger they are not indicated with the above symbols, but are listed on the parts lists with Index No.